



Minnesota Plant Press

The Minnesota Native Plant Society
Newsletter

Volume 16, Number 1

Fall 1996

Upcoming Monthly Meetings

Minnesota Valley National Wildlife Refuge
Visitor Center, 3815 East 80th Street
Bloomington, MN 55425-1600 612-335-2323

6:30-7:00 PM—Refreshments, Room A
7:00-8:30 PM—Program & Society Business
8:30 PM—Socializing
9 PM—Doors close sharply at 9 PM

1996

- October 3—Don Del Greco: Wildflowers With Wings: Butterflies and Native Plants.
November 7—Char Bezanson: Growing Wildflower Seedlings; Terry Goodfellow on Minnesota Green (report); Seed Exchange
December 5—Scott Bradley: MNDOT Woody Plant Selection Matrix (CD ROM); Book Store Open
December 7—Board Meeting, 10-12 AM

1997

- February 6—Bonnie Harper-Lore: Roadside Vegetation Management Nationwide
March 1—Board Meeting, 10-12 AM.
March 6—Dean Hansen: Creating and Enjoying a Sand Prairie
April 3—Lee Ronning: Land Stewardship
May 1—Plant Photography Contest
June 3—Program Meeting and Plant Sale;
Book Store Open
June 22—Board Meeting, 12-4 PM

Deadline for Winter Issue is 11/15/96

•To pool rides to the **Minnesota Valley National Wildlife Refuge**, please call—well in advance—Grace Gray who will coordinate pooling

The new season brings a varied program of wildflowers, woody plants, vegetation management, sand prairies, and stewardship

Don Del Greco, assistant manager at Banning State Park will start the season with a discussion of *Wildflowers With Wings: Butterflies and Their Association with Native Plants* on October 3. Note a minor change in time format in the schedule in column 1 on this page.

On November 7, Char Bezanson of St. Olaf College will talk on *Growing Your Own Wildflower Seedlings: A Personal Approach for Home or Classroom*. Instead of a Plant-of-the Month, Terry Goodfellow of the Minnesota Horticultural Society will report briefly on *Minnesota Green: Community Environmental Protection*. This will be followed by the annual seed exchange (see page 3 for details).

On December 5, Scott Bradley of the Minnesota Department of Transportation Environmental Services will demonstrate the *MNDOT Woody Plant Selection Matrix* on CD-ROM. At this meeting the MVNWR Bookstore will be open. Note that there will not be a meeting in January 1997.

February 6th's speaker will be Bonnie Harper-Lore of the Federal Highway Administration who will reply to the query *What's the State of the Art in Roadside Vegetation Management Nationwide?*

March 6 will bring us MNPS member and private consultant and educator Dean Hansen who will tell us about *Creating and Enjoying a Sand Prairie*.

In April, Lee Ronning will discuss the Land Stewardship Project, specifically *Land Use Planning, Population Expansion, and Impacts on Native Plants*. Results of a plant photography contest organized by the Minnesota Nature Photography Club will be seen on May 1.

The annual plant sale will accompany the program on June 3. The bookstore will be open at this meeting also.

Board meetings will not be held the same evenings as program meetings to enable greater sociability among all members. There are several important posts to fill in the MNPS and anyone wanting to serve can identify themselves to any of the board members. Note the dues envelope inserted in this issue.

Donald B. Lawrence died April 29, 1996, at the University Good Samaritan Center after a struggle with pneumonia. He was a popular professor of botany at the University of Minnesota, where he taught from 1937 to his retirement in 1976. Professor Lawrence was a major contributor to research in plant ecology, especially the return of plant life to areas that had been covered by glaciers and volcanoes. He also was an early and leading advocate of ethnobotany. He was known in his classes for his extensive use of slides from exotic and interesting locations.

The relationship Professor Lawrence had with many of his students was as a mentor, and he and his wife Lib, created a community of scholars who met often at their home to share details of their research. "He taught his students to pay attention to detail, and to observe and appreciate the process of nature," said Chris Soutter, a student and former assistant. "I've made choices in my life because of what I learned from him. He affected my education decisions, my career, and how I teach my children."

In 1974, Professor Lawrence received the University's highest award for excellence in teaching. He was greatly respected by his students and colleagues; he was also honored by the Ecological Society of America for exceptional service to the science of ecology, and in 1995, he received a special certificate of honor from the College of Biological Sciences for his long-standing contributions to that college.

Professor Lawrence took a unique path to his academic career: after attending Reed College in Oregon, he went to Johns Hopkins and was awarded a PhD degree in 1936, the only degree he ever received. He was invited by Professor William S. Cooper to join the botany faculty at the University of Minnesota. In 1964, he received a Fulbright Fellowship to support his research in the South Pacific. He continued to work on comparisons of the history of plant communities related to

glaciers in Chile, New Zealand, and Glacier Bay, Alaska, throughout his career. As recently as 1993, he presented a paper on Alaska on his work there.

He was active in the Ecological Society of America for 50 years, and in the Minnesota Native Plant Society. He was a founder of the Minnesota Chapter of the Nature Conservancy, and he donated land, time, and professional expertise to preserving natural landscapes in both Minnesota and Oregon. His efforts to help create the University's Cedar Creek Natural History Area for ecological research and teaching led to the naming of the main building in his honor at a ceremony last year.

Professor Lawrence was a strong supporter of the Minnesota Native Plant Society. He had close ties to this organization from the beginning; two of his former students were among its founders. He was involved with the starting of the annual seed exchange, providing advice and special financial support. He gave one of the first lectures (January 1983) on *Vegetation Development in Southeast Alaska following Glacial Recession as a Key to Understanding Early Post-Glacial Vegetation in Minnesota*. He enjoyed attending the monthly lectures and did so regularly until his health failed. He will be remembered with great affection and respect.—prepared by Chris Soutter.

Conservation Online: The TNC Homepage

The Nature Conservancy (TNC) provides information online entitled *Wired for Conservation*. The homepage leads to audio and visual clips and includes information on rare and endangered species and more, within the United States. Access TNC at <http://www.tnc.org>.

Remember to pay dues

The Minnesota Native Plant Society

Minnesota Plant Press
Thor Kommedahl, editor

Membership dues are \$10 per year for regular members and includes subscription to the newsletter; dues for students and seniors are \$8, for family \$12, for institutions \$20, and donors \$25. Checks can be made out to: Minnesota Native Plant Society, and sent to: Minnesota Native Plant Society, 220 Biological Sciences Center, 1445 Gortner Avenue, St. Paul, MN 55108.

Four issues are published each year.

MNPS Board of Directors

President: Char Bezanson,

Vice-President: Charles Umbanhowar,

Treasurer: Pat Ryan,

Secretary: Christine Drassal,

Deb Anderson,

Dave Crawford,

Gerry Drewry,

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Val O'Malley,

Gary Perrault,

Roy Robison,

The Minnesota Native Plant Society is a tax-exempt 501 c3 organization as determined by the US Internal Revenue Service.

Record native plant and landscaping projects for MNPS presentation

Members of MNPS are encouraged to take slides of their own projects on native plants and landscaping and save them to alternate with Plant-of-the-Month presentations. Projects could include native plants, propagation, butterfly gardening, mini-prairies, landscape design, habitat restoration, and more. Share your experiences with others. If interested, call Gary Perreault,

The Prairie Reader—a periodical on prairie ecology, preservation, and restoration

This quarterly publication provides a forum for discussion on prairie biology and ecology. The September issue contains 12 articles on a variety of topics, announcements of events, and book reviews. Camille LeFevre is publisher and editor. Subscriptions (4 issues/year) are \$18, and sample issues are \$5. Order from *The Prairie Reader*, PO Box 8227, St. Paul, MN 55108.

Watch valuables left in cars at parking lot

All MNPS members are reminded that valuables left in vehicles in the parking lot of the Minnesota Valley National Wildlife Refuge are always at risk. Please take appropriate action.

Interesting Web Sites

Mississippi River:
<http://www.greatriver.com>
Biologist's Notebook:
<http://www.p-pub.com>

Seed Exchange is planned for November 7

MNPS sponsors a seed exchange every fall. This year the exchange will take place immediately following the regular program meeting on November 7. Seed should be from member's gardens or from the wild. Seeds should be dry; avoid storing seeds in plastic bags that retain moisture. Whenever possible, please package seeds per person not as a bulk supply.

Label the seed as completely as possible, including scientific and common names, collection site, habitat, date of collection, and the collector's name. Any cultural information provided is appreciated. First choice of seed will go to the contributors, then the seed exchange will be open to all.

Contributors often provide envelopes, but members are encouraged to bring their own envelopes. In collecting seeds from the wild be judicious in selecting quantity.

MNPS Display Board Use

All members are welcome to show our display board at events, museums, and schools, if an attendant is present or it is safely displayed. This 3 by 5 foot, 2-sided board holds information on the Society, native plants, and stewardship. Call Don Knutson

Oak ecosystems conference

A conference on *Oak Ecosystems in Minnesota and the Midwest* will be held October 9, from 8 AM to 5 PM at the Hormel Nature Center, 1304 NE 21st St., Austin, MN 55912. The registration fee is \$35. Make checks payable to DNR and send to DNR c/o Kathy Bolin,

School Nature Area Project funds native plantings

This project provides funds to schools for projects that will improve wildlife habitats and enhance native vegetation on or near school grounds. Cash awards vary from \$500 to \$1500. In 1995, SNAP funded 30 projects such as prairie restorations; native plantings for birds, butterflies and insects; native tree and shrub plantings; and more. MNPS members are encouraged to work with a school or teacher on such projects. The application deadline is December 2, 1996. Projects must be completed by June 1998. Request applications from Char Bezanson: bezanson@stolaf.edu, or write to SNAP, St Olaf College, 1520 St. Olaf Ave., Northfield, MN 55057.

National Wildlife Refuge Week at Minnesota Valley National Wildlife Refuge will be October 5-13

Celebrating their 20th anniversary, an open house will be held October 12 at the Visitor Center, 1 to 4 PM. Special events include:
• *Fall Colors on the Minnesota River*, Belle Plaine-Thompson Ferry Landing, October 5, 10 AM to 3:30 PM. Age 8 to adult. Call for reservations.

• *Calling All Squirrels*, Visitor Center, October 6; 2 to 3:30 PM. Short walk in woods.

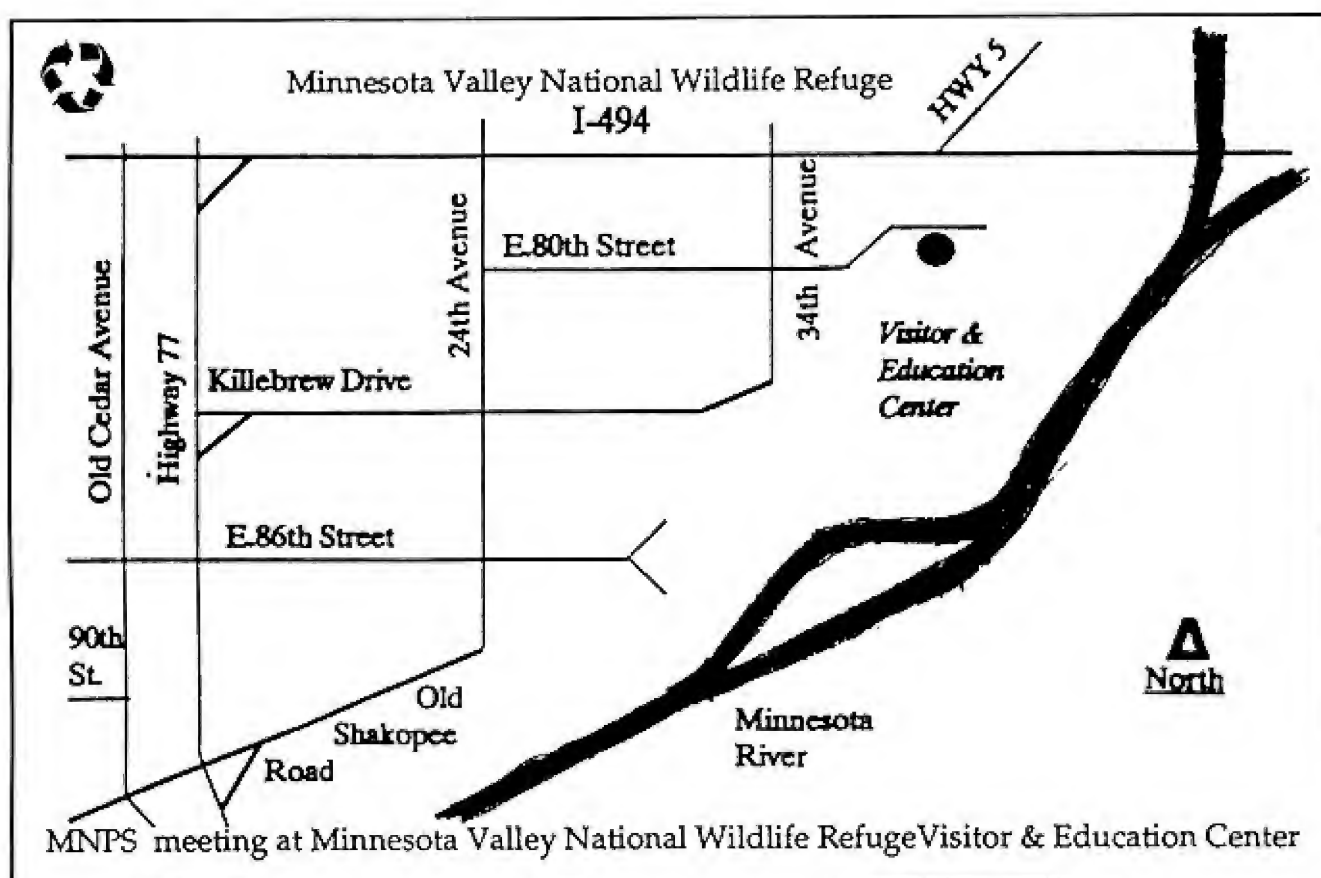
• *Morning Bird Hike*, Bass Ponds, October 6, 13; 9:30 to 11 AM.

• *Late Afternoon Canoe Paddle*, in one of refuge marshes, October 9; 3:30 to 6 PM. Ten canoes only. Call for reservations.

• *Bike the Urban Refuge*, Old Cedar Avenue Start, Oct 6, 13; 9 AM to noon. Call for reservations.

Minnesota Native Plant Society
University of Minnesota
220 Biological Sciences Center
St. Paul MN 55108

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JANUARY No meeting

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March 1—Board Meeting, 10-12 AM.

March 6—Dean Hansen: *Creating and Enjoying a Sand Prairie*

April 3—Lee Ronning: *Land Stewardship*

May 1—Plant Photography Contest

June 3—Kathy Boleen, *Exotic and Problem Plants in Minnesota Parks and Natural Areas;*

Plant Sale; Book Store Open

June 22—Board Meeting, 12-4 PM

Deadline for Spring Issue is March 15, 1997

•To pool rides to the **Minnesota Valley National Wildlife Refuge**, please call—well in advance—Grace Gray who will coordinate pooling (612) 484-0190.

•For **Winter Weather Emergency**, contact Diane Hilscher, 612-557-9153 to find out if the Center is open or not

Growing Prairie Seedlings Indoors

Char A. Bezanson

Growing prairie seedlings from seed collected in the wild or from a restoration site is a rewarding project that can help you get to know particular species on a new level, as well as to provide native plants for a pollinator garden or to diversify a prairie restoration. Many prairie plants grow easily from seed, but there are some ways that native seed differs from most seed sold by commercial garden seed suppliers.

Native plants are genetically diverse. Generally, native prairie plants have not been manipulated by plant breeders to select for particular characteristics, such as flower form or size. The genetic makeup of seeds is not uniform: the plants grown from native seed, even from seed of the same species, will vary in characteristics such as germination requirements, size, flower form, rate of growth, and other genetically determined attributes. Native plants are not usually tended by gardeners, and it is to the plants' advantage to be able to survive under a wide variety of weather and "cultural" conditions. In some ways, this makes native seed very "forgiving": it's likely that at least some seeds will germinate, grow, and survive in a particular year, whether spring is early or late, the summer wet or dry, or the seedbed sunny or shaded. As gardeners, however, we may not be satisfied with a 5% germination rate or weak seedling growth, so we can try to imitate a "good" year, providing optimal conditions for the seed and young plants. While a typical herbaceous plant is composed of 95% water, a mature seed contains about 2% water. In this dormant form, the young plant is very resistant to adverse environmental conditions such as dry air or extreme cold.

Once the seed germinates, however, the plant is at its most vulnerable stage. It is subject to damage by cold, heat, and lack of water. For these reasons, plants possess many mechanisms to ensure that the seed will germinate when it is likely to encounter enough moisture, warmth, and light to grow and mature.

Seed treatment. Some seeds require abrasion or acid treatment of the seed coats; without this treatment, seeds will not imbibe water—the first stage in germination. (continued on page 8)

Editorial

Shade-grown coffee, birds, and ecology

Changes in the way coffee is being grown in Latin America and the Caribbean may be contributing to the decline of America's songbirds, writes Laura Tangley in *Science* (November 22, 1996). According to the US Breeding Bird Survey, wood thrush numbers have dropped by 40% over a 25 year span, and the golden-winged warbler and orchard oriole are down 46% and 29%, respectively. At first the loss of forests was thought to account for this, but now it may be attributed to the way coffee is grown. Coffee has for some time been grown in the canopy of trees. Shade-grown coffee was the preferred crop. Such a canopy provided a diversity of habitat that attracted birds and other wildlife, including snakes, mammals and insects. Coffee plantations teem with wildlife.

Now, farmers in Latin America are switching to higher-yielding coffee varieties that are grown in full sun—a habitat that is not as conducive to migratory birds and other wildlife. This illustrates that striking shifts in the culture of one agricultural crop can alter the ecology of many life forms. This has been amply demonstrated in the American prairies where field crops replaced natural vegetation. And, the logging off of forests has changed the fauna and flora of woodlands.

We have also witnessed reversals in which we have attempted to restore prairie vegetation along roadsides and in parks. Note the several references in this issue to "take back" nature: the Greening Conference (page 3), use of mycorrhizae in roadside plantings (page 4), the Olmsted Prairie Nursery Project (page 5), as well as the lead article (page 1), and the topic of February 6, on roadside vegetation management.

Some national organizations are encouraging home plantings of native plants to provide habitat for flora and fauna that are disappearing from the prairies and woodlands of the nation. We seem to be learning!

MNPS' Guide to Spring Wildflower Areas published in 1996 is still available

This guide prepared by Marylyn and J.B. Andersen, Jim Schuster, and John Moriarty has been updated, redesigned, and reprinted as the 1996 edition, and covers the Twin City natural areas. Vera Ming Wong prepared new illustrations. Copies can be purchased at regular meetings of the MNPS at the Minnesota Valley National Wildlife Refuge Center.

To receive a copy by mail order, send \$5 (check or money order) to MNPS, c/o Char Bezanson, The School Nature Area Project, 1520 St. Olaf Avenue, Northfield, MN 55057. Make checks payable to the Minnesota Native Plant Society.

Board Briefs

- Decision was made **not** to hold a regular MNPS meeting in January.

- A sum of \$300 was donated to the Minnesota Valley National Wildlife Refuge for use of meeting rooms.

- Don Knutson volunteered to monitor the doors at MVNWR until other volunteers come forth.

- Volunteers are needed for postcard mailing and to serve refreshments at meetings.

- The board voted for MNPS to become an official member of the University of Minnesota Landscape Arboretum with an annual registration fee of \$60.

- Charles Umbanhowar volunteered to develop a home page for MNPS, to be linked as <http://www.stolaf.edu/depts/biology/mnps>

- 90 attended the meeting in November, and 44 in December.

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The Greening Conference is planned for February 22

The theme of this conference to be held at the Hennepin Technical College on February 22, 1997, from 8:30 AM to 5 PM, is *Using Plants to Build Communities*. This is an activity of the Minnesota Green Program.

The keynote speaker is Susan Davis Price, author of *Minnesota Gardens: An Illustration History*. In addition to a variety of topics, there will hands-on demonstrations on planting and equipment.

The Minnesota Green Program supports grassroots efforts in community greening projects and provides for membership and benefits. For details on the Minnesota Green Program or the 1997 Conference, contact Terri Goodfellow-Heyer at _____, or Greener MN at (800) 676-3638.—selected from material prepared by Terri Goodfellow-Heyer, Minnesota State Horticultural Society.

Record native plant and landscaping projects for MNPS presentation

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DNR seeks volunteers

The Minnesota DNR welcomes volunteers for any of the 6 regions in the state. Request details from DNR Volunteer Programs, 500 Lafayette Road, St. Paul, MN 55155.

MNPS Online

The Minnesota Native Plant Society has a web site. It was developed by Charles Umbanhower of St. Olaf College. On the home page are described the society, the newsletter, speakers and topics for 1996-1997, links to information and images of native plants, and a listing of suppliers of plants in the state. In addition, recent articles that have appeared in *Minnesota Plant Press* are printed and available for downloading. Access it at <http://www.stolaf.edu/depts/biology/mnps>

MNPS Display Board Use

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International Horticultural Conference in New York

The International Horticultural Conference will be held June 21-22, 1997 at the Buffalo Museum of Science, in New York. Topics include: Creating a Garden Journal, Water Garden Plants, Unusual Trees and Woody Plants, Perennials, Wild Flowers, Landscaping for Birds, Gourmet and Medicinal Mushrooms, Early and Late Gardens, and Irises. The registration fee before May 1, 1997 is \$160 for 2 days for museum members and \$175 for non-members. For details, contact Buffalo Museum of Science, 1020 Humbolt Parkway, Buffalo, NY 14211; tel. 716-895-8739; fax 716-839-5662.

MNPS members can join Minnesota Landscape Arboretum at a discount

Members of MNPS can become members of the Minnesota Landscape Arboretum at a \$5 discount as well as receive additional benefits of Dial-U, discounts at the Gift Shop, and discounts at the Apple House. Members are admitted free to the Arboretum and receive a bi-monthly Arboretum newsletter. The regular membership fee is \$60. The MNPS is itself a member.

Garden writers seek photogenic landscapes

Sally and Andy Wasowski are working on a new book titled *Native Gardens for the Prairie States* (University of Minnesota Press) and are looking for gardens showing at least 50% indigenous plant materials. Contact the Wasowskis if you have information or photos.



Pike Island, Fort Snelling State Park
October 13, 1996

Society Activities

Treats at Monthly Meetings

After several years of much-appreciated attention by John and Jackie Buffalow, the "hospitality" function (treats and coffee at monthly meetings!) is now more widely distributed. At the October meeting, people signed up to bring treats at various meetings. Currently, we have at least one volunteer for each meeting except June—more volunteers are welcome! Coffee, which is provided by the Refuge, can be made by anyone who wants to drink some—if you get to meetings early, we encourage you to make a pot! It's easy!

We thank Chris Drassal, Diane Hagstrom, Mary Risdall, and Lee Shannon for providing treats for the November and December meetings. Volunteers for upcoming meetings are as follows:

| | |
|------------|-------------------------------------|
| February 6 | Bettina Darveaux |
| March 6 | Char Menzel |
| April 3 | Kandis Tsuchiya, Peggy Brakken-Thal |
| May 1 | Marcie O'Connor |
| June 3 | ? |

—Char Bezanson

Adopted Garden Group to Meet February 6

We have scheduled a meeting to discuss the Refuge adopted-garden projects for 6:30 PM on February 6, 1997, prior to the regular monthly meeting. The top priorities will be a simple design plan and a maintenance plan for the space just outside of the classroom windows at the Visitor Center. This space is too sunny for a true woodland garden, but we will select a variety of partial-sun tolerant woodland plants, probably including wild geranium, columbine, and a few other "edge" plants. Anyone interested in becoming a regular member on the design team is welcome.

We hope to make decisions about the design and maintenance of the space this winter and start work in the spring. If you anticipate that you may have plants to donate, keep us in mind and let me (Chris Armstrong) know.

Newsletter editor will be needed in 1998

Any MNPS member with a yen for writing and editing can look forward to a challenge in becoming the editor of MPP starting the fall of 1998. This means preparing an issue 4 times a year of 4-12 pages each. Besides having writing and editing skills, the editor will need a computer with software supporting a newsletter format. If interested, contact the current editor for details. Perhaps you want to break-in first.

MN-NATPL Internet Listserv—Update

In 1995, Robin Fox set up an Internet E-mail mailing list, or "listserv" for people interested in Minnesota native plants. Currently, there are about 25 members. Activity on the list has been sporadic—mail from this list won't overflow your mailbox on a daily basis, but there have been some good discussions and networking. The list is served by a University of Minnesota mainframe computer, and has been free of charge up until now. It looks like the University may start to charge a moderate fee for this service in the near future. It is possible that MNPS could cover this fee if there were enough MNPS members interested in his program. If you are interested in making use of the MN-NATPL listserv, you are encouraged to subscribe to the list, as detailed below. If you have an opinion on the value of such a list to you, E-mail bezanson@stolaf.edu and make your views known!

As reported in MPP, Summer 1995 (Vol. 4, Nr.3):

Functions of listserv include:

- Plant rescue: notification, coordination
- Garden "chat": notes on the passing scene, materials to share, horticultural discussion
- Field trips: event calendar, trip reports, notes
- Government related: political information, action
- Visitor contact: for example, those wanting to go on field trips, wanting to contact peers
- Mechanisms for sharing net resources: for example, materials to share from other state native plant mailing groups

Anyone can subscribe but only members can read from it or review the membership: it is not anonymous. Messages (files) are not edited or moderated. Nonmembers can send files. All files should be signed (in addition to your address in the heading) and titled appropriately.

To subscribe

- Send E-mail to: listserv@vm1.spcs.umn.edu
- Leave subject blank
- In the text: SUBSCRIBE MN-NATPL your name (not address) or UNSUBSCRIBE MN-NATPL your name

For correspondence to the group, send E-mail to MN-NATPL@vm1.spcs.umn.edu

For questions, call Robin Fox

or E-

mail him at foxqx001@gold.tc.umn.edu

Is your E-mail address recorded in the Directory of Members? If you want it listed, contact Marcie O'Connor at marcie@haven.com by E-mail.

Society Activities

A new "expert system" for tree and shrub selection is now available

A Mn/DOT interactive, multi-medium expert system for selecting trees and shrubs is now available for purchase through the DNR. The CD-ROM is titled *Trees & Shrubs For Minnesota Landscapes & Roadsides*. If you examine the CD-ROM along with the credits and information sources utilized, you will quickly realize how monumental the collaborative effort has been on this project. Michael Max of EnvironMentor Systems provided the programming assistance under contract with Mn/DOT. Key features include data and color photos for more than 320 trees and shrubs applicable to roadside and landscape plantings in Minnesota.

The interactive program is extremely user-friendly and is appropriate for professionals and novices alike. The program searches the database for plants matched to the characteristics, site conditions and functions you select and provides a listing of all plants that pass your selected criteria. You can then print out the list and fact sheets on individual plants. You can also print out range maps for native Minnesota trees and shrubs and field data worksheets to collect site information.

Use of the *Trees & Shrubs For Minnesota Landscapes & Roadsides* disk requires a computer with the following:

- 486 or better processor and Windows 3.1, 95 or NT.
- At least 8 MB of RAM and a hard disk with at least 10 MB of free space.
- CD-ROM drive, Super VGA monitor and a mouse.

The cost is \$20 per CD-ROM unless you purchase 10 or more disks to qualify for the quantity discount rate of \$15 per CD-ROM.

To obtain an order form, contact: Rose Holman, DNR Forestry, 1200 Warner Road, St. Paul, MN 55106; (612) 772-7926, fax (612) 772-7599.

—Scott D. Bradley

Scott Bradley of MN/DOT Landscape Programs described and demonstrated this equipment at the December 5, 1996 meeting of the MNPS at the Minnesota Valley National Wildlife Refuge Center.

Did you know that a gentle drop of rain falling outside of a ripe puffball can force a million spores or so into the air. A large specimen of the giant puffball (*Calvatia maxima*) is estimated to contain about 18 billion spores.—C.M. Christensen, *Common Edible Mushrooms*, U of M Press.

Conservation Issues subcommittee to meet February 6 at the refuge center

All members interested in conservation issues involving native plants are invited to a subcommittee meeting to be held before the regular MNPS meeting on February 6, 1997, at 6:30 PM. Several items will be considered, including how the MNPS can support projects such as the federal *Teaming with Wildlife* initiative, which proposes a small "user fee" on items such as outdoor equipment, bird seed, and other products used by "wildlife hobbyists", to be returned to the states for non-game wildlife conservation purposes. This program is similar to the one that has been in place for decades on hunting supplies, which goes to support conservation of game species.

Another current issue is the reauthorization of a portion of lottery funds to support conservation issues, which will be considered by the Minnesota legislature this year.

There may also be an organizational meeting of this group in January; contact board members Val O'Malley or Charles Umbanhowar for information on this.

—Char A. Bezanson

Teaming With Wildlife seeks to generate state-dedicated funds for fish and wildlife conservation, recreation, education

This program, known also as *The Wildlife Diversity Funding Initiative*, favors adding a surcharge or user fee to sales of recreational equipment. The fee will be based on a percentage of the manufacturer's cost (inventory value) of the product, ranging from 0.25% to 5%. Outdoor products being considered are recreation equipment such as backpacks, tents, canoes, mountain bikes; optical equipment such as binoculars; photographic items such as film and cameras; wildlife supplies; guide books used for field identification; and recreational and sport utility vehicles. Hunters and anglers now pay such a user fee.

The US Treasury would collect the fees and turn funds over to the US Fish and Wildlife Service. These funds will be dedicated to wildlife diversity projects focused on conservation, recreation, and education for the benefit of fish and wildlife other than game species.

More than 100 groups have given approval for this project, including the MNPS, and this approval is needed when this initiative goes before Congress. Watch for the appearance of this bill before Congress when a number will be assigned to it.

Native plants in England and Northern Ireland benefit from grazing animals

A flock of mostly Hebridean sheep were transported from a farm to graze on the tall grass on the landward side of the dunes along the Northumberland coast of England. Because of the selectivity of their grazing they take the grass and leave the wildflowers alone, thereby creating a colorful and interesting flora in the meadow. Similarly, Exmoor ponies were taken to the dunes in Northern Ireland where the ponies grazed on bracken and gorse but avoided the valued heather and other flowering species—reported in the *The Royal Oak Newsletter*, summer 1996 (page 11).

In a related story, Ken Crocker and his four sons arranged for 20 hardy cattle and ponies to graze the wild cliff tops above the Atlantic Ocean in Cornwall, England, in the fall of 1944. Orchids appeared last summer for the first time after more than a half century. Other species returning were bird's-foot trefoil, violets, wild thyme and heather. Many birds, insects, and animals also reappeared after the grazing of lands. This new management regime has encouraged farmers to alter their management practices to hasten the return of wild plants and wildlife. This was reported in *The National Trust Magazine*, number 78, page 11, 1996.

Leafy spurge on America's least wanted species list

Leafy spurge (*Euphorbia esula*) is a noxious weed that has spread across 3 million acres of rangeland in north-central United States, crowding out native grasses and cutting grazing land productivity in half. Leafy spurge is a threat in 11 states. The leafy spurge flea beetle is one possible control. (*Nature Conservancy* 46[6]:21, 1996)

National Collection of Endangered Plants kept by the Missouri Botanical Garden

The Center for Plant Conservation at the Missouri Botanical Garden maintains 496 of America's rarest plant species at 25 gardens and arboreta throughout the United States. The species maintained at these gardens and arboreta are listed on the Web and can be accessed from the home page of the Center for Plant Conservation: <http://www.mobot.org/CPC>

Mycorrhizal analysis of roadside prairie plantings

Numbers of spores in mycorrhizal fungi serve as potential indicators of restoration sites involving native grasses and forbs reports Bob Jacobson of the Minnesota Department of Transportation, in a 3-year project. The plan is to introduce inoculum of these fungi into restoration sites along highways. (*Roadsides* 4[1]:3, 1996)

Keystone species redefined

Defined by Paine in 1969 as a species to preferentially consume and hold in check another species that would otherwise dominate the system, the term has been redefined as a species whose effect on its ecosystem or community is not only large but disproportionately so relative to its abundance. Identification of keystone species is not easy.

The keystone concept shows, for example, how the loss of some species in low abundance may have surprising effects. Thus, land managers should consider carefully the consequences of species loss for which no obvious role in the ecosystem has been found. Such challenges in the quest for keystones is discussed by Mary E. Power and nine associates from various institutions. (*BioScience* 46: 609-620, 1996)

Minnesota is a national leader in production of wreaths and greenery

Many wreath producers prefer balsam fir, but some use white pine and white cedar. Harvesting is by arrangement with the DNR, Chippewa National Forest, tribal councils, and county agencies. Some work with paper companies for selective pruning of trees. Bough cutters must get a permit for harvesting boughs on public lands. Bough cutters can average 1,000 pounds of boughs in a day. —from article by John Krantz, DNR Division of Forestry (*The Minnesota Volunteer* 59[349]: 53-54, 1996)

Quaking aspen widely distributed in North America as response to catastrophe

"No other tree species occupies a larger part of North America [than the quaking aspen]", reports Chris Madson, editor of *Wyoming Wildlife*. It survived because of ice age glaciers and modern wildfires. "Aspen can withstand temperatures from 70 degrees below zero to 100 degrees above." Trees can live in muskegs and tamarack bogs as well as in arid regions of western desert basins. Genetically identical aspen groves occur because of asexual reproduction, so that all trees in the grove are clones. The quaking aspen is important to an estimated 500 species of animal and plant according to New York Botanical Garden director Thomas Elias. Aspens are now being regarded as important in modern timber management. (*National Wildlife* 34[6]: 28-34, 1996)

Midwest corn fields were once dominated by big bluestem. They were first used for grazing by Native Americans who burned tracts to attract bison to graze on the fresh new shoots, reports Rachel Bynum of *River Bend Nature Center* (17:3, 1996)

Plant Lore

What is lingenberry?

Lingenberry is *Vaccinium vitis-idaea*, in the heath family. It has many other names such as mountain cranberry, lingberry, lingonberry (Scandinavia), cowberry, and foxberry. The specific epithet refers to grape near Mt. Ida, Greece.

Where does it grow?

It likes rocky, dry, acid soil in upland forests, especially pine, and in peat bogs and tundra. One can find lingenberry in northeastern Minnesota, New England and northward into arctic and subarctic Canada.

What does it look like?

It is an evergreen shrub usually less than 6 inches tall. Tiny leathery, alternate leaves only a fourth to a half inch long are borne on slender stems. The bell-shaped flowers are small white to pinkish-red that eventually produce dark-red berries that are tart but edible when cooked, making flavorful jams and jellies.

How does it differ from cranberry?

Lingenberry, or northern mountain cranberry as it is known in Minnesota, differs from American cranberry by having black-dotted undersurfaces of leaves, seen with a hand lens, whereas American cranberry leaves are whitened underneath. No other creeping shrub has this black-dotted foliage.

Does it have medicinal properties?

Although reputed to be effective as a diuretic and antiseptic, only its efficacy as an antiseptic (leaves contain hydroquinone) has been documented.

In that this plant grows also in New England, has it any historical significance?

Probably; M.L. Fernald of Harvard thought that lingenberry, not wild grape, is the plant *vinber* from which the name Vinland was derived by the Vikings. Squashberry, cloudberry, and wild currant are other possibilities (*Rhodora* 12:17-38, 1910).

Wildflowers with Wings

Donald Del Greco

Perhaps the title *Wildflowers with Wings* reveals more about the intimate relationship of butterflies to plants than first meets the eye. As one observes butterfly behavior, whether viewing the beautifully adorned adult stage nectaring on a multitude of flowers or to a close inspection of the voracious yet selective appetites of the splendid larval stage, we begin to witness this close and complex link between butterflies and plants.

In refreshed pursuit of butterfly observation and study, we begin to see the natural world through a unique window, for one cannot become a butterfly enthusiast without at the same time growing more sensitive to the surrounding plants, animals, soils, weather, landforms—the landscape as a whole. Appreciation for the landscape as a whole, and the understanding of the imperative for thoughtful and caring stewardship of our remaining Minnesota landscapes will be essential to the protection and preservation of our precious natural heritage.

Continued observations and study of the marvelously complex world of butterflies with further data collection on various species will certainly complement and enhance our ecologic understandings, for as ephemeral as butterflies appear, they can serve as an integral component of environmental quality and function as indicator species.

These vivid expressions of life, from the miracle of metamorphosis to the seemingly endless color and design of butterfly wings, have filled us with wonder and have much to teach us about the diversity of life, perhaps more than first meets the eye.

A summary of a talk given on October 3, 1996, at the MNPS meeting at the Minnesota Valley National Wildlife Refuge Center by Don Del Greco, Banning State Park.

Olmsted Prairie Nursery Project plans nursery for plants destined for roadsides and parks

Kimm Crawford and Joel Dunnette have received a state grant of \$4,500 to collect seeds of native prairie plants to establish a nursery for plants that can be used for roadsides and parks. This project, however, has to match the funds with volunteer hours, money, or materials, writes John Weiss of *The Post-Bulletin* in Rochester, Minnesota.

Volunteers are needed to collect seeds, plant them in flats, survey collection areas, teach about native plants, keep track of sites where seeds are collected, and transplant seedlings.

The goal initially is to collect 50 pounds of seeds of big and little bluestem, Indiangrass, black-eyed-Susan, coneflower and other native plants.

The project is sponsored by the Zumbro Valley Audubon Society, University of Minnesota Extension Service, Master Gardeners, Olmsted County, South Zumbro Watershed, Pheasants Forever, and Friends of Oxbow. Joel and Sandra Dunnette are members of MNPS.

Plant resources on-line

•The New York Botanical Garden web site is <http://www.nybg.org>

•*Index Nominum Genericorum* (ING) can be accessed at the National Museum of Natural History web site at <http://www.nmnh.si.edu/ing/>

•*Endangered Species Update* <http://www.iucn.org/themes/ssc/index.html>

•*Poisonous Plants with photos* <http://www.ansci.cornell.edu/plants.html>

Growing Prairies Seedlings Indoors

(continued from page 1)

These seeds are often encased in a colorful, fleshy fruit that invites birds or other animals to lunch. The seed passes through the bird's crop or the mammal's acidic stomach, where the seed coat is abraded or eroded, and where the seeds are distributed far from the parent plant.

Germination requirements. Some seeds require a period of "afterripening" of weeks or months after the seeds are shed, during which time the embryo continues to develop. Some seeds require light for germination: this explains why you usually get a nice crop of annual weeds after spading the garden. But the most common requirement for prairie seeds seems to be for typical spring weather: a few weeks of cold, wet conditions at temperatures just above freezing. These conditions increase the oxygen available to the seed, causing chemical changes within the seed to initiate germination.

Stratification. If a seed requires a cold, moist treatment to break dormancy, a gardener can provide these conditions by sowing the seed outdoors in the fall, and dormancy will be broken naturally in early spring. We can also sow seeds in flats, water the flats, and store the flats in a cool place for 3-12 weeks before providing warmer growing conditions. Foresters developed a method of pre-chilling conifer seeds in moist peat moss in trays stacked in refrigerators: the stacks of trays apparently looked like layers (strata) of rock, and the term "stratification" has become applied to this process. We can do the same by mixing seed with moist sand or vermiculite and refrigerating the container and its contents. For small amounts of seed, I usually use plastic film cans half filled with moist sand. I add a spoonful or two of seed to the container, shake it up, and store the labelled containers in the refrigerator. The seed should be stratified for up to several months. For seeds to store well for long periods of time, they must be kept dry; so, stratified seeds must be sown during the next growing season or seeds will deteriorate.

Stratification requirements for many species of prairie plants are known, and requirements are given in references (see end of article) or may be listed in the catalogs of prairie-seed suppliers. If requirements are not known, the first step is to see if the seed will imbibe water. If not, it probably requires scarification for water to penetrate the seed coat. If the seed does imbibe water, it may germinate with no further treatment. Often, some seeds from a lot will germinate with no treatment, but the germination rate will increase markedly if the seed is stratified for a few weeks. If your interest is more practical than scientific, and your objective is to get the most seedlings from your seed with the least trouble, I'd suggest stratifying your seed for 60 days be-

fore planting them. Many seeds require this, seeds that don't require it will not be damaged, and you can keep records of any that fail to germinate, researching them further.

Growth procedure. Growing prairie seedlings after the seed is treated is similar to growing any other seedlings. The main difference is that germination rates may not be high or uniform, and that many prairie plants will grow slowly, putting most of their energy into growing roots rather than into growing shoots. For this reason, I use a two-step process. I start the seeds in a germination flat in a light soil mix, transplanting seedlings promptly to individual containers or cell-packs as soon as seedlings can be handled. This saves potting mix, and allows for differences in germination rate and conditions among species. I've grown seedlings in school milk-cartons, paper cups, peat pots, peat pellets, and undivided flats: all have advantages and disadvantages, but all can work.

Here is how I currently do it:

After 60 days or more of cold stratification treatment, I spread the contents of a film can, including seed and sand, over the top of a layer of moist vermiculite in a recycled plastic blueberry basket with a top, or in another small flat with a cover. If the seeds are large, like the milkweeds, I cover them with a quarter inch or so of vermiculite. I then water flats from the bottom, by placing them in a shallow tray of water for an hour or so. If a cover is not available, I put the flat in a plastic bag; once the seeds start to imbibe water, they can't be allowed to dry until the plant has developed a good root system. I then put the flats in a warm place (70-80 °F), if possible: most seeds will germinate faster at higher temperatures, but even at lower temperatures they will germinate eventually. Some seeds prefer a low germination temperature—if you don't know, you'd probably be safer keeping all flats at about 60 °F.

(continued next page)

Easy-to-grow Minnesota wildflowers

All of these plants grow locally, and will attract butterflies and/or hummingbirds. All are native to prairies and need full or nearly full sun; all are perennials, although brown-eyed-Susan is short-lived: butterfly-weed (*Asclepias tuberosa*), swamp milkweed (*Asclepias incarnata*), brown-eyed-Susan (*Rudbeckia hirta*), yellow coneflower (*Ratibida pinnata*), prairie coreopsis (*Coreopsis palmata*), stiff goldenrod* (*Solidago rigida*), blazing star* (*Liatris* sp.), New England aster* (*Aster novae-angliae*), and wild bergamot (*Monarda fistulosa*).

*All listed species will benefit from stratification for 30-60 days at 35-40 °F; species marked require this treatment for germination

Post-germination care. Once the seeds have germinated, I make sure the seedlings have plenty of light, and keep them cool to encourage stockier plants. I grow them under cool-white fluorescent lamps, with the lamps about 6 inches above the flats, and provide about 18 hours of light per day, using a timer. Window light is not usually bright enough or for a long enough duration in late winter, so supplementary light makes a real difference. Because plants are covered, they will not need frequent watering, but must be kept moist. Seedlings may grow in the germination flats for up to several weeks after germination. Keep in mind, however, that vermiculite has no nutrients, and will not support seedlings for long. If they are crowded, they will also grow slowly, so it's to your advantage to transplant them as soon as seedlings are large enough to handle. The first leaves to emerge from the seed will be the cotyledons; usually, I transplant seedlings as soon as the first true leaves begin to emerge.

Indoor transplanting. When seedlings are ready, I transplant them into new or clean, reused plastic 6-pack containers. The advantage of these containers is that the seedling develops a good root system separate from any other plant, which is beneficial at planting time. I use a soil mix composed of a third sterile potting soil, a third peat moss, and a third perlite or vermiculite. I moisten the potting mix, fill the containers, and make a hole in each cell of soil with a chopstick or pencil. I then loosen the seedlings from the germination flat with a fork or stick, while pulling it out by holding onto a leaf or cotyledon. I then put the seedling into the hole. When the flat is filled, I may firm the seedlings in with a tool, or just water them in from the top with a sprinkling can or spray bottle. I place the 6-pack containers in a flat or tray with no drainage holes, and water from the bottom by filling the tray with a half inch or so of water; the potting mix will absorb the water. After an hour or so, I pour off the excess, or remove it with a turkey baster. Watering from the bottom encourages good root growth and doesn't dislodge the seedlings. It's also easier. If you want to water from the top, I suggest using a spray bottle rather than a watering can until the plants are firmly rooted. It is not really necessary to fertilize native plants, but if you feel compelled to do so, use a very dilute solution of fish emulsion or a balanced fertilizer. The main ingredient for success from this point on is plenty of light.

Field transplanting. In spring, plants must be "hardened off" before they are ready to be transplanted into the garden or prairie restoration area. The idea is to accustom them to increased amounts of ultraviolet light, as well as physical stress such as wind and rain before you disturb the root system by transplantation. I do this by putting the flat of 6-packs in a sheltered area adjacent to my garage;

here plants will be exposed to wind and rain but can be protected from direct sun by using a white polyester "floating row cover". Prairie plants are not as tender as many garden plants and will tolerate light frost, so I sometimes move the plants outside when I run out of room under my lamps; then I cover them with the floating row cover material or put them in a cold frame.

When the plant roots have filled the 6-pack cell and the weather has warmed, the plants are ready to be planted out. Some plants, like stiff goldenrod, yellow coneflower, and brown-eyed-Susan, will make a nice "plug" of roots in just a few months. Grasses and many other plants, however, take a while longer; so you may want to grow them outside in the flats for few weeks. If you do plant them out before the roots have filled the cell, take extra care in removing the plant from the 6-pack because roots will not "pop" out like a more well-developed root system will. When planting seedlings, try to envision the size of the mature plant, and allow at least one square foot of space per plant. If the ground is not moist, watering may be necessary during the first season; after that, it should be unnecessary.

The plants will spend most of the first season producing roots, and may not bloom or produce much top growth. If you want, you can mow or weed-whack a new prairie garden at about 6 inches to control weeds, but be careful about weeding as it is easy to pull up your new plants during the first season. At the end of summer, you will probably have at least some seed to collect from your new plants, and you can start all over!

Useful references:

Collecting, Processing and Germinating Seeds of Wildland Plants. James A. Young and Cheryl G. Young. Timber Press, 1986. General work, includes information on germinating tree, shrub, and herb seeds. ISBN 0-88192-057-6.

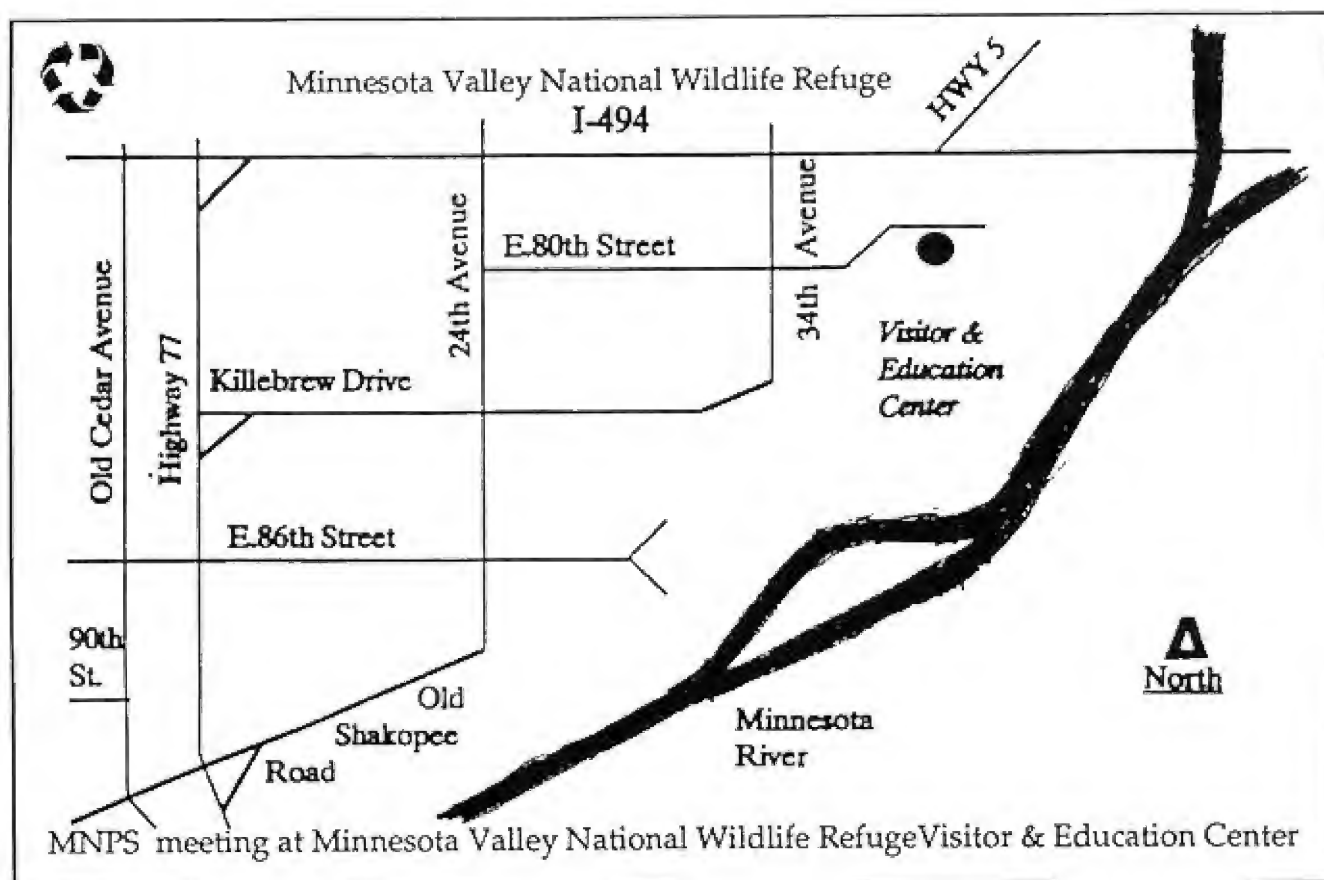
Restoring the Tallgrass Prairie: An Illustrated Manual for Iowa and the Upper Midwest. Shirley Shirley. Univ of Iowa Press, 1994. Basic advice on growing prairie plants from seed, both indoors and outdoors. 110 species are described and illustrated, including information on germination and culture. Paperback, about \$15, or hard cover. ISBN 0-87745-469-8.

The New Seed-Starters Handbook. Nancy Bubel. Rodale Press, 1988. Excellent manual on growing plants, including wildflowers, from seed. Information on soil mixes, containers, light, seed treatments, cold frames, transplanting, pests and troubleshooting, seed collection, etc. Available in paperback, about \$15. ISBN 0-87857-752-1.

This is a summary of a talk given by Char Bezanson, St. Olaf College, Northfield, Minnesota, at the meeting of the MNPS on November 7, 1996.

Minnesota Native Plant Society
University of Minnesota
220 Biological Sciences Center
St. Paul MN 55108

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Minnesota Plant Press

The Minnesota Native Plant Society
Newsletter

Volume 16, Number 3

Spring 1997

Upcoming Monthly Meetings

Minnesota Valley National Wildlife Refuge
Visitor Center, 3815 East 80th Street
Bloomington, MN 55425-1600 612-335-2323

6:30-7:00 PM—Refreshments, Room A
7:00-8:30 PM—Program & Society Business
8:30 PM—Socializing
9 PM—Doors close sharply at 9 PM

1997

April 3—Lee Ronning, *Land Stewardship*

May 1—Plant Photography Contest

June 3—Kathy Boleen, *Exotic and Problem*

Plants in Minnesota Parks and Natural Areas;

Plant Sale; see p 3, Book Store Open

June 22—Board Meeting, 12-4 PM at

Minnesota Valley National Wildlife Refuge
Center

Deadline for Summer Issue is June 15, 1997

MNPS Home Page—

<http://www.stofal.edu/depts/biology/mnps>

In this issue—

- Butterfly garden, p. 1
- Plant sale, p. 3
- Spring Field Trips, p. 5, 6
- Fire ecology, p. 5
- Sand prairies, p. 7

To pool rides to the **Minnesota Valley National Wildlife Refuge**, please call—well in advance—Grace Gray who will coordinate pooling

On making a butterfly garden

by Marcie O'Connor

Now that spring is on its way, many of us are thinking of new things we might try in our gardens. One of the most enjoyable things I have tried is planting flowers that attract butterflies. I have a small area of sunny garden in my front yard in St. Paul, and I have successfully attracted at least 14 different species of butterflies.

When I decided to plant a butterfly garden last summer, I consulted many of the recent books and magazine articles about butterfly gardening. Some of the plants recommended were native, but most were not. I decided to experiment, and to branch out a little from my all-native garden. After a summer of gardening and butterfly watching, I have come to some conclusions that I'd like to share. I would also like to compare notes with other butterfly gardeners to see if they have had similar experiences. And I'm anxious to try some new plants in next year's garden.

The clearest result of my experiments was that native plants attract many more butterflies than non-native plants do. Among the native plants I include purple coneflower, which is not quite native here, but which grows naturally as far north as southern Minnesota.

There were a few non-native plants that did attract butterflies. Black swallowtails laid eggs on my curly parsley. As I walked around my neighborhood, I noticed black swallowtail caterpillars on nearly every parsley, dill, and fennel plant. Garden varieties of *Verbena* attracted hummingbird clearwing moths and silver spotted skippers.

(continued on page 7)

Meet the new members of our board for 1997-2000

Bill Capman

Bill is a native of Illinois and moved to Minnesota about 3 years ago to teach ecology and general biology at Augsburg College, in Minneapolis. His professional education is in the areas of plant ecology (including experience with natural plant communities and revegetation of coal strip mines), insect ecology (plant-insect interactions), and microbial ecology. He has a strong interest in native plants, natural history, preservation of native plant communities, in addition to interests in nature photography, drawing and painting, fish breeding, gardening and horticulture.

Catherine Reed

Catherine is a Lecturer in the Department of Entomology at the University of Minnesota, St. Paul. She says "All my life I've been interested in native plants. At work I'm doing research on interactions among insects and plants with a special interest in prairie conservation and restoration ecology. I would like to encourage MNPS to become even more involved in those issues. I'm also involved with helping teachers and kids work with insects. At home, I have a small native-plant garden. I appreciate MNPS's confidence in electing me, and I look forward to serving on the board."

John and Jackie Buffalow

They live in Mendota, Minnesota. Both have been active in MNPS and have handled refreshments for the past several years. They indicated that they became interested in native plants because of their involvement in the savanna restoration project.

Please welcome these new members to the board.

Board Briefs

- Ideas for a symposium were discussed with possibility of substituting a day-long tour of Prairie Moon in June.

- Nancy Albrecht agreed to again coordinate field trips for MNPS.

- Membership patterns over the years were discussed and how that affects the future of MNPS.

- The Board agreed to become one of 60 Minnesota organizations to support the effort on *Teaming With Wildlife*. The proposal will be submitted in March in Washington, DC, by the Minnesota Nongame Wildlife Program Supervisor.

- The Board approved taping MNPS programs with speaker approval. Dave Crawford will handle procedures.

Financial report for 1996

| | |
|--------------------------------|-----------|
| Cash on hand 1 January 1996 | \$1892.84 |
| Income during 1996 | 6690.88 |
| Total assets 1996 | 6166.83 |
| Expenses during 1996 | 10497.82 |
| Balance on hand 1 January 1997 | 1714.84 |

| | |
|------------------------|-------------------|
| Income | |
| Membership | \$3720.00 |
| Donations | 224.00 |
| Symposium | 474.00 |
| Wildflower Guide sale | 442.00 |
| Tester books | 1060.00 |
| Ownbey books | 100.00 |
| Plant sale | 283.00 |
| Interest checking acct | 24.84 |
| Interest on cashed CDs | 363.04 |
| Total income | \$ 6690.88 |

| | |
|---------------------------------|-------------------|
| Expenses | |
| Printing & copies | \$ 2311.10 |
| Postage | 1415.89 |
| Speakers | 300.00 |
| Symposium | 449.57 |
| Supplies | 83.72 |
| Books acquired to sell (Tester) | 1042.10 |
| Paid services | 265.00 |
| Meeting Room rent | 300.00 |
| Arboretum dues | 60.00 |
| E-mail account | 75.00 |
| Updating display | 15.18 |
| Phone calls | 66.86 |
| Repayment of loan for WF Guides | 3962.32 |
| Refreshments | 151.08 |
| Total expenses | \$10497.82 |

Checking account balance 1/1/97 **\$1714.84**

Assets on hand January 1, 1996

CD #13941396877 at TCF 23 mo. @ 4.92% due April 1996 \$1129.11
 CD #2861396872 at TCF 23 mo. @ 5.25% due July 1996 \$290.00
 CD #6667266144 at TCF 17 mo. @ 6.25% due Dec 1996 \$645.06

Other Assets
 CD #959709444 at TCF 16 mo. @ 6.65% due 4/18/98 \$694.63
 At renewal Dec 1996 \$49.58 in interest was added to CD
Total current assets (checking + CD) \$2409.47

The checking account is #0728653 at Anchor Bank of West St. Paul

— Pat Ryan, treasurer

The Minnesota Native Plant Society

Minnesota Plant Press

Thor Kommedahl, editor

Membership dues are \$10 per year for regular members and includes subscription to the newsletter; dues for students and seniors are \$8, for family \$12, for institutions \$20, and donors \$25. Checks can be made out to Minnesota Native Plant Society, and sent to : Minnesota Native Plant Society, 220 Biological Sciences Center, 1445 Gortner Avenue, St. Paul, MN 55108.

Four issues are published each year.

MNPS Board of Directors

President: Char Bezanson,

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Gerry Drewry,

Thor Kommedahl

Val O'Malley,

Gary Perrault,

Roy Robison,

The Minnesota Native Plant Society is a tax-exempt 501 c3 organization as determined by the US Internal Revenue Service.

Society Activities

MNPS Plant Sale will be in June

The popular MNPS plant sale will be held following the program at the meeting on Thursday, June 5. This annual event offers an opportunity for members and non-members to diversify their native gardens while providing income for the society. A broader selection of plants is expected this year than in previous years, because the sale will be a month later—in June, instead of May.

All members and visitors are encouraged to participate as donors, buyers and helpers. People who bring plants to the sale will have the first opportunity to select plants to take home. Most of the plants will be sold for \$1 each; unique or large plants will have higher prices.

Guidelines

- Bring only native plants. They should be plants that you raised from seed or took from your own garden. Do not take plants from the wild.

- Each plant should be in an individual container. There will be no facilities for repotting them that evening.

- Label each plant. Include your name, the plant name—both common and Latin (if known), preferred habitat (woodland, wetland, prairie, etc.) and the geographic location where it grew.

- If possible, bring a box in which to carry your new plants.

- When the sale opens, each person may select three plants to buy. Those who brought plants will be at the beginning of the line. After all have made their initial purchases, anyone may go back and purchase additional plants.

Anyone who would like to help with the sale is invited to attend a plant sale committee meeting before the April 3 and May 1 MNPS meetings. These committee meetings will be at 6:30 PM, during the refreshment period.

—Gerry Drewry, Plant Sale Committee Chair

Guide to Spring Wildflower Areas

This MNPS guide prepared by Marilyn and J.B. Andersen, Jim Schuster, and John Moriarty has been updated, redesigned, and reprinted as the 1996 edition, and covers the Twin City natural areas. Vera Ming Wong prepared new illustrations. Purchase copies at regular meetings of the MNPS.

To receive a copy by mail order, send \$5 (check or money order) to MNPS, c/o Char Bezanson, The School Nature Area Project, 1520 St. Olaf Avenue, Northfield, MN 55057. Make checks payable to the Minnesota Native Plant Society.

For those with or thinking about getting E-mail

MNPS is now hosting an E-mail group. It will work as a means to get out field trip and meeting reports or responses, gardening help and notices for sharing materials, coordinate political or management actions, instant announcements including rescues, questions to an interested or knowledgeable community, and a place for ongoing discussions of any and all related matters. E-mail groups such as this one are a means for a group of any size and distribution to communicate with itself, quickly and in all directions. A message from a home computer of a member, for example, is received by their local "server" and sent to the large central computer at the University of Minnesota that houses the software for our group. This message is then distributed back to the E-mail boxes of all other members, more or less instantly, and then "downloaded" to the individual's home computer at that person's convenience. E-mail groups vary greatly in size and traffic. At the moment we are small, as such things go, with rather moderate aspirations.

Our E-mail group, MN-NATPL, is for both members and non-members of MNPS. There is no editor, so all messages are automatically posted. Only subscribers may post messages but anyone may quickly and easily subscribe (or unsubscribe). All this service is free (actually underwritten by MNPS) and the plan is that it will remain so. Membership is basically not anonymous since the membership list is available to "list" members, and in addition our protocol is to sign all messages.

To become a member:

In the "TO" box: listserv@tc.umn.edu

"Subject" box: (leave blank)

"Message" box: subscribe MN-NATPL your name here without brackets (or put in signoff instead of subscribe if you wish to unsubscribe)

MNPS Display Board Use

All members are welcome to show our display board at events, museums, and schools, if an attendant is present or it is safely displayed. This 3 by 5 foot, 2-sided board holds information on the Society, native plants, and stewardship. Request it from Don Knutson

Announcements

Native Plant and Landscape Restoration Day at Wild River State Park May 3

Each spring for the last 13 years, Wild River State Park has put on a special event, "Seegwan - A Celebration of Spring". This year's theme revolves around native plants and their role in small and large-scale landscapes. Although a schedule of events is not available now, presenters and exhibitors have been lined up for the day-long event Saturday, May 3.

Presenters include the Wild River Audubon Chapter with an early morning bird hike, Dean Hansen on creating and enjoying a sand prairie, a representative from the Minnesota Land Trust on protection options for landowners, Terri Goodfellow-Heyer on using native ecotypes to design home landscapes, Don Del Greco on butterflies and plants, Dave Crawford's musical plant kingdom slide show and a talk on the value of native plants in landscaping, a representative of the Ramsey County Watershed District on the pilot project to use native plant gardens to capture urban lawn runoff, and a video on nationwide use of native plants in roadside management. In addition, a hands-on activity is planned for park visitors to help sow an old farm field in the park with more than \$1500 dollars' worth of prairie grass and wildflower seed collected by volunteers last fall.

Exhibitors will include some of the presenters mentioned above, plus the Minnesota Native Plant Society display board, Landscape Alternatives, and the Chisago County Master Gardeners. For information about the event, call Dave Crawford at

(a long distance call from the Twin Cities) or E-mail to dave.crawford@dnr.state.mn.us

If you have seen and enjoyed some of these presenters at MNPS meetings, recommend them to people you know, and tell people about the chance to see them on May 3, 1997, at Wild River State Park.

If you are a landscaper or designer who uses native plants, or a supplier of native plant materials, send particulars about your business to Dave Crawford, Wild River State Park, 39755 Park Trail, Center City, MN 55012. Time permitting, a handout listing native plant landscaping resources will be prepared for distribution at the park.

Volunteers sought for tree planting May 3

Greening the Great River Park is sponsoring tree planting Saturday, near the NSP High Bridge plant on the Mississippi River, near downtown St. Paul. Volunteers of all ages are invited (rain or shine) from 8:30 to 9:30 AM to plant trees until noon. Lunch is provided. Bring shovels. Call _____ for details or by April 23 to register

Adult Nature Seminars at the Maplewood Nature Center

Saturday environmental gardening series

April 5, 1-3:00 PM *Water gardening with native plants* Greg Smith will speak on native plants you can use, and their sources. He will also discuss how to build, plant and maintain marsh gardens. Prepay by April 2.

May 3, 1-4:00 PM *Naturalized home landscaping: designing for you and wildlife* Landscape architect and plant ecologist, Diane Hilscher will show you how to use native plants and wildflowers in your home landscape: includes slides, landscape plans, and a visit to a nearby wildlife garden. Prepay by April 30.

June 14, 10-12:00 AM *Wetlands in your backyard* A speaker from the Ramsey-Washington Watershed District will help you to identify common wetland plants and go through planning steps for enhancing a wetland. Prepay by June 11.

Fee: \$8/person, per program.

To register, send a check with your name, address, daytime phone number, and title of class you are registering for to: Maplewood Nature Center, 2659 East Seventh St. Maplewood, MN 55119. For more information call _____

Midwest Oak Savanna and Woodland Conference in Madison, Wisconsin

This conference will be held July 30 to August 2, 1997, at Memorial Union, University of Wisconsin-Madison, and its purpose is to evaluate current knowledge on restoration of Midwest oak savanna woodland systems. Paper sessions will accompany field trips. For details, contact Nancy Braker, Director of Science and Stewardship, The Nature Conservancy 633 West Main St., Madison, WI 53703; 608-251-8140; nbraker@tnc.org. See web site at <http://www.uwsp.edu/acad/cnr/oaksavan/wiconf97.htm>

Volunteers are needed to watch the door and let people in to the Minnesota Valley National Wildlife Refuge Center just before each of the regular meetings of the Society. Perhaps a teenager of a member? Let Charles Umbanhowar know of any such volunteers by calling him at _____

Thanks

Spring Field Trips

Nancy Albrecht

April 27 1-3 PM *Nerstrand Big Woods Wildflower Walk*. Char Bezanson is leader. Meet in picnic area. RSVP at

April 30 7:30 to 11:30 AM. *Woods, Warblers and Wildflowers: Nerstrand Big Woods State Park*. Hike trails while birdwatching and seeking early spring flowers. Naturalist Elaine Feikema will discuss bird migration. Fee is \$10 and includes refreshments. Reserve a place from The Nature Conservancy at 612-331-0700 or call for information.

May 3 2 PM *Nerstrand Big Woods State Park Dwarf Trout Lily Wildflower Walk*. See plants and environment and efforts to protect them. Call 507-334-8848 for details and directions.

May 3 10 AM *Rice Lake State Park: Wildflowers Forever*. Learn how state parks manage woods. Call 507-455-5871 for details and directions.

May 3 7:30-11:30 AM *Nerstrand Big Woods State Park: Woods, Warblers and Wildflowers*. Artist Dan Milbert will show slides and relate nature to art, especially birds. Reservations required. Call The Nature Conservancy at 612-331-0700 for details.

May 14 7:30 to 11:30 AM *Nerstrand Big Woods State Park: Woods, Warblers and Wildflowers*. Birdwatching, botanizing, sustainable forestry, big woods ecosystems are topics for activity. Forester Dick Peterson leads. Fee is \$10 and includes refreshments. Call The Nature Conservancy at 612-331-0700 for details.

May 17 10-11:30 AM *St. Croix State Park: Wildflower Watercolors Walk*. Spring flowers on banks of Sand Creek. Meet at interpretive center to car pool to Sand Creek. Call 320-384-6615 for directions.

May 17 4 PM *Sakatah Lake State Park: Living on the Edge Wildflower Walk*. Area is example of Big Woods, oak savanna and Cannon River shore as ecosystem. Call for directions.

May 17 2 PM *Wild River State Park: Spring Wildflower Identification*. Free Minnesota orchid poster to each participant. Meet at visitor center. For directions call 612-583-2925.

June and July Sundays. *Lake Bemidji State Park Bog Walk*. Board walk 1/4 mile long. Naturalist or volunteer available for queries or directions. Call 218-755-3843 for details and directions.

•See page 6, column 2 for **Prairie Moon Trip**

Burning Issues in Management of Native Plant Communities

Charles Umbanhowar

Fire has played an important role in shaping native plant communities in Minnesota since at least the last glaciation and the suppression of fires since settlement in the 19th century continues to promote change in many of our remnant forests, prairies and wetlands.

This week I attended a conference titled *Fire Ecology: Understanding Theory and Practical Application* sponsored by the Minnesota Department of Natural Resources Parks and Recreation and the University of Minnesota College of Natural Resources. Several important ideas emerged from the talks.

Fire is ancient—Fire has been present in this area for a long time. Fires produce microscopic charcoal that is deposited in lake sediments, and is present in the sediments of most lakes in Minnesota—whether from woods or prairies. This charcoal dates back to about 12 000 years ago when the glaciers were retreating but disappears from most lakes at about the time of Euro-American settlement. Ample fire scars—thin black bands in the wood that parallel the growth rings might be fire scars—on the trunks of pines and oaks also testify to the repeated presence of fire, and the journals and accounts of early explorers are filled with reports of fire.

Native peoples' role—A second idea was the importance of native peoples in burning. Dry lightning can start forest or prairie fires but one speaker estimated that in Wisconsin, for example, 70-80% of the fires were started by native peoples. They used burning as a management tool to attract and maintain populations of white-tail deer, elk, bison or turkey. Fires were also used directly and indirectly in warfare. Burning was a way to remove cover that could hide an enemy or cover your own tracks, and burning in the fall would drive game away from the encampment of your enemy (including European traders).

Apparently, some differences existed in when fires were started. In Illinois most native-set fires were in fall, whereas in Wisconsin most fires were in spring; in the Dakotas the burning season peaked in August.

Different cultures apparently used fire in different ways but little of this knowledge has survived and information about when and how frequently areas were burned has largely been lost.

Fire absence is a disturbance—The long history of fire in Minnesota and the Midwest means that an absence of fire is not "natural" and represents a disturbance. (continued on page 6... **Fire ecology**)

On all field trips, wear appropriate clothing and hiking shoes, make reservations and get vehicle permits when requested; bring field guides, hand lenses, camera, binoculars, and mosquito lotion. Bring your own lunch and beverage when trips start or end at noon. Enjoy the panorama of nature!

Many prairies and oak savannas were converted to forests with the ending of fire. In prairies, fire removes dead leaves and stems that can accumulate to a depth of 6 inches or more. Fire blackens the soil encouraging faster growth in the spring especially of warm season grasses such as big bluestem and Indiangrass and fire may also remove excess nitrogen from prairie soil. Recent management efforts have emphasized (1) using fall or summer burns in addition to spring burns so as not to favor the growth of warm season grasses at the expense of forbs or cool season grasses such as porcupine grass, (2) burning at different time intervals (1-5 years), and (3) burning only a part of a prairie in any one year to enable recolonization by fire sensitive insects and other species from unburned areas.

Fire absence changes flora—In the absence of fire, oak savannas and oak woodlands have become dense forests invaded by native species such as sugar maple or adventives such as buckthorn. Oak savannas are plant communities dominated by widely spaced oaks (pin, bur, or white) with a grassy, prairie-like understory as a result of frequent, recent fires. These savannas became oak woodlands with more densely spaced trees and reduced sedge-dominated understory when fires were less frequent. Such savannas-woodlands occurred on sandy soils or heavier, moist sandy-loams.

Fire as restoration means—Restoration work in Wisconsin, Minnesota, Illinois and Indiana has focused on fire as a management tool. Restoration includes use of an intense fire to open up the canopy followed by several less intense burns. Sites dominated by buckthorn may not have enough fuel to carry a fire so mechanical cutting is necessary, but cutting or logging must be followed by fire or species such as aspen will take over. Most oaks resprout vigorously after being burned in these

fires and the seed bank, at least in sandy soils, contains many prairie species that germinate after fire.

Fire education—All speakers emphasized the need for monitoring ecosystems, to measure effects of burning, and the need for educating us and the public on fire ecology.

Most of the conference participants were Parks and Recreation employees but other DNR employees and representatives from agencies such as the U.S. Fish & Wildlife Service were included. Several conference organizers and presenters were MNPS members. The conference was held March 24-27, 1997 at the Earle Brown Center, Brooklyn Park, MN.

Field trip to Prairie Moon nursery and Mound Prairie School Nature Area June 14

Prairie Moon Nursery, 9:30 AM.

Wildflowers and gardens in the Wiscoy Valley Land Cooperative.

- From Winona, take Highway 43 south one-fourth mile to Winona County 17, 7 miles to Witoka, continue on Cty 17 for 3.6 miles.

- From Rochester, take highway 1-90 to highway 43, north exit. Go south, left on Cty Road 19, 5.8 miles. Turn left (east) onto gravel Cty Road 17, go 1.5 miles.

Prairie Moon Nursery is on the north side of the road

Mound Prairie School Nature Area (SNA) Noon. (*Bring food and beverage*). Hike or relax at Bluffland's largest and noteworthy SNA. Ken Kailing of Eco-Systems Design from Hokah will share experiences as steward of these mesic oak forest and dry prairie habitats.

- From Houston, take east hwy 16, 7 miles

- From Hokah, take hwy 16, 5 miles. Meet east of SNA sign at parking area on north side of highway near the forest road gate and a rock face.

For details, contact Deb Anderson,

(Food, lodging, camping)

Plant Lore

What are pussytoes?

Pussytoes belongs to the aster family and its Latin name is *Antennaria*, which means "antennae".

How did it get these names?

The female parts of the flower are split into two threads that resemble antennae of insects to give the genus name. Obviously, the soft, fuzzy flowerheads look like kitten's paws to give the name pussytoes.

Are pussytoes native to Minnesota?

The plantain-leaved pussytoes, *A. plantaginifolia*, is native and grows on both sides of a line drawn from southeast to northwest Minnesota, often at the edges of open woodlands and in dry, gravelly areas.

What kind of a plant is pussytoes?

Well, it is a woolly stemmed perennial and grows in rosettes. Flowerstalks grow from the center of these rosettes in spring. The male and female flowers are on different stalks. The flowerstalks have no leaves, only bracts. New plants come from leafy stolons and underground rhizomes that overwinter.

Is it true that female plants produce seed without sex?

It's possible. In plantain-leaved pussytoes, male plants occur as frequently as female plants but in other species of *Antennaria* male plants are rare. In fact, in most species of pussytoes there are no male plants; female plants produce seed anyway—without sex.

Why can clusters of male plants be seen at one place and female plants at another?

Because plants can grow from runners and rhizomes, clones are produced, sometimes as separate colonies and sometimes intermingled. This is not a substitute for sex [but then what is?]. However cross pollination by wind is ensured by having separate male and female plants.

Planting and Enjoying a Sand Prairie

A sand-gravel mix offers homeowners, gardeners, landscapers, park managers and construction engineers with an interesting way to recreate a fascinating, beautiful, short and amazingly weed-free community: a sand prairie.

If the construction site already offers you a sand or sand-gravel mix, you're all set; however, if the site has heavier soil, a load of "pit run" sand-gravel mix must be brought in. A cubic yard of sand will cover an area of 30 square feet and 11 inches deep—6 to 8 inches of sand works well.

To start, kill existing vegetation with an herbicide or a mulch. Plugs of plants can then be planted in this sand without competition from weeds.

Forb selection—Suggestions for a basic "pit run" sand prairie are: pasque flower, prairie smoke, showy penstemon, silky aster, lupine, harebell, cream indigo, aromatic aster, purple prairie-clover, butterfly-weed, rough blazingstar, and grey goldenrod.

Other desirable plants include: prairie larkspur, dotted blazingstar, cylindric blazingstar, prairie buttercup, blue-eyed-grass, pussytoes, alumroot, prairie onion, lead plant, slender penstemon, prairie phlox, thimble flower, New Jersey tea, pale-spiked lobelia, pale purple coneflower, coreopsis, golden aster, long-leaved bluet, spiderwort, black-eyed Susan, compass plant, white prairie-clover, silky prairie-clover, partridge-pea, dotted mint, upright coneflower, roundheaded bush-clover, showy goldenrod, bird's-foot-violet, heath aster, flowering spurge, prairie phlox, hoary vervain, ground plum, and scurf-pea.

Audio tapes. If you can't attend a meeting but would like to hear the presentation, you can purchase an audio tape of the meeting, starting with the one on March 6, 1997 (subject to permission by the speaker). Send a check for \$5 payable to the *Minnesota Native Plant Society* and a mailing label with your full name and address. Send check and meeting date selection to Dave Crawford.

Remember, tapes do not include visual material.

Grass selection—For grasses in the Twin City area, suggestions include junegrass, hairy or blue grama-grass, little bluestem, prairie dropseed, side oats grama, and possibly sand reed grass (tall) and porcupine grass (has quills).

Sources of plants and seeds—Materials are available from companies listed in the MNPS web site <http://www.stolaf.edu/depts/biology/mnps>, the MNPS Directory, or the yellow pages of phone books.

Why make a sand prairie?

- Flower bloom from pasque flower in mid-April to asters in October
- Insect variety
- Plants usually short, probably less than a foot tall
- Few if any weeds
- Little thatch buildup to reduce or eliminate periodic burning.

Locations of sand prairie preserves—Guides are available from the Minnesota Department of Natural Resources and the local chapter of The Nature Conservancy. Some natural sand prairies near the Twin Cities are: DNR St. Croix Savanna, just south of Bayport; Helen Allison Savanna in northeast Anoka County; and the Grey Cloud Dunes in southern Washington County.

The Cheyenne National Grassland in North Dakota is unsurpassed as a true sand prairie.

Material selected from a handout prepared by Dean Hansen for a talk to the MNPS on March 6, 1997, at the Minnesota Valley National Wildlife Refuge Center. Dean is a private consultant living in Stillwater, Minnesota.

Butterfly garden

(continued from page 1)

Of the native plants, the best were purple coneflower, common milkweed, marsh milkweed, and *Liatris*. Purple coneflowers attracted swallowtails, monarchs, red admirals, and mourning cloaks. Monarchs laid eggs on both the common milkweed and marsh milkweed, and many butterflies (swallowtails, banded hairstreaks, monarchs, painted ladies) came to the milkweeds for nectar. *Liatris* attracted many monarchs during the time that monarchs were migrating. Sometimes there would be 6 or 8 monarchs on each stalk of flowers. The native species of *Liatris* seems to attract monarchs more than the cultivated varieties do.

A birdbath and some flagstones are favorite perching sites of some butterflies, especially banded hairstreaks.

Other flowers which successfully lured butterflies were: green-headed coneflower, fireweed (cabbage butterflies, moths, monarchs), butterfly-weed, ironweed, and Joe-Pye-weed.

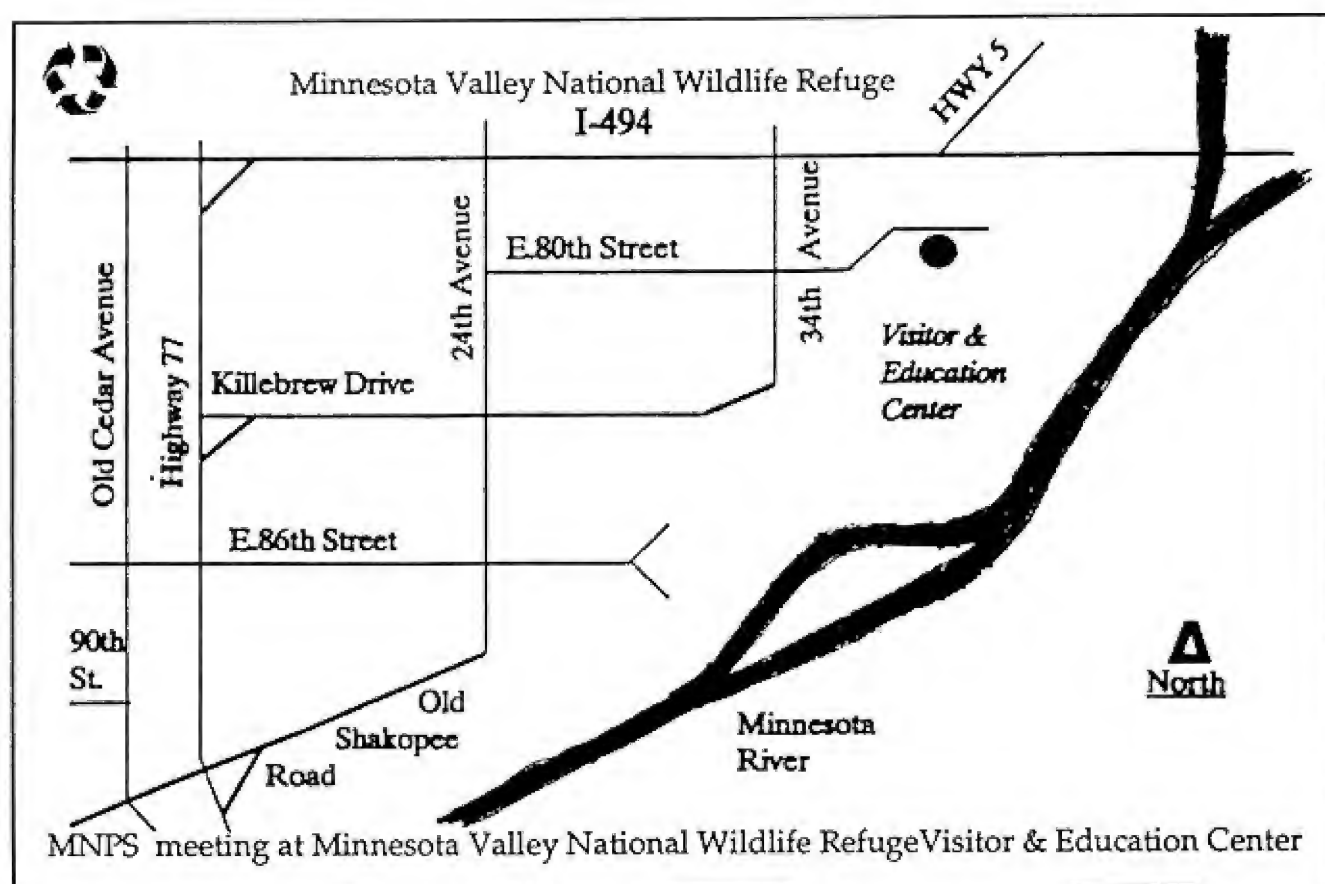
I would like to share information and observations with other butterfly watchers and gardeners. Please E-mail, call, or write me at: Marcie O'Connor,

Marcie is a member of MNPS, and prepares labels and the Directory of Members for MNPS. She is also an avid gardener and lives in Falcon Heights, Minnesota

Jewelweed—moisture indicator—The 7-inch-below-normal rainfall at the Eloise Butler Wildflower Garden in 1996 resulted in an absence of plants in the upland area and sparse growth in the bog area of jewelweed (*Impatiens pallida* and *I. capensis*). These species are good indicators of moisture. (*The Fringed Gentian* 47[2]: 2, 1996)

Minnesota Native Plant Society
University of Minnesota
220 Biological Sciences Center
St. Paul MN 55108

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Minnesota Plant Press

The Minnesota Native Plant Society
Newsletter

Volume 16, Number 4

Summer 1997

Upcoming Monthly Meetings

Minnesota Valley National Wildlife Refuge
Visitor Center, 3815 East 80th Street

Bloomington, MN 55425-1600 612-335-2323

6:30-7:00 PM—Refreshments, Room A
7:00-8:30 PM—Program & Society Business
8:30 PM—Socializing
9 PM— Doors close sharply at 9 PM

Prairie Field Trips

Nancy Albrecht

August 9 University of Minnesota Landscape Arboretum, Chanhassen. Tour of restored prairie and lecture. For details call (612) 443-2460.

Minnesota Department of Natural Resources (DNR) holds prairie day activities in state parks and School Nature Area Program sites. For details call (612) 296-6157.

Deadline for fall issue is September 15, 1997

Fall meetings: October 2, November 6, and December 4, 1997: programs to be announced

MNPS Home Page

<http://www.stolaf.edu/depts/biology/mnps>

To pool rides to the **Minnesota Valley National Wildlife Refuge**, please call—well in advance—Grace Gray who will coordinate pooling

MNPS Board met June 22 for annual retreat

The MNPS Board of Directors and officers met for 4 hours on Sunday, June 22, 1997 for the annual retreat. The annual board retreat provides an opportunity for board members—both outgoing and new—to get together for an extended period of planning, to elect officers and discuss major problems in some depth.

Election of officers. Charles Umbanhowar will assume the presidential responsibilities starting this fall. Pat Ryan was reelected treasurer and Chris Drassal was reelected secretary. Election of the vice president (who becomes president in the following year) was postponed until the September meeting of the board to give new and continuing board members more time to consider their interest in assuming this position.

Committee chairs. Dave Crawford was reelected chair of the Program Committee and Gary Perrault and Catherine Reed will be responsible for putting together program speakers for next year. Please contact them if you have a suggestion for a talk or if you would like to do a *Plant-of-the-Month* presentation. Charles Umbanhowar will undertake the duties of the Publication Committee and John and Jackie Buffalow will head up the Membership and Outreach Committee. We are still in the process of electing a chair for the Conservation Committee. Please feel free to contact these chair persons with any suggestions, questions, comments or concerns.

Quarterly board meetings. The board expressed satisfaction with the move to quarterly board meetings because this change allowed more people the chance to converse with other members during our annual meetings, as well as during our monthly meetings. This change means, however, that we will need to examine our constitution and operations manual to make necessary changes in times for electing officers, and other matters.

Thanks to outgoing board members and officers. Thanks were extended to outgoing members Char Bezanson (past president), Val O'Malley and Roy Robison. Thanks were also expressed to the many members who continue to volunteer their time and energy to help with mailings, memberships, field trips, and other important functions for the Society.

(continued on page 4, Board retreat)

Editorial

MNPS—Who are we?

The Minnesota Native Plant Society comprises a diversity of interests and vocations. What unites this diverse assemblage of people? Undoubtedly, native plants, either from an intrinsic interest in nature or for a commercial concern in making a living, or both, motivate people to participate in the MNPS. Regardless of interest, conservation and a love of nature may be the common thread.

Perhaps six groups can be identified. One is a group of academic plant scientists who teach and do research in colleges and universities in the state. A second group consists of plant scientists and technical persons employed in various federal, state, county, and municipal agencies. A third group is represented by those employed in business and industries such as floral shops, greenhouse enterprises, and landscape firms. A fourth group includes persons involved with writing, planning, teaching, and consulting about plants. Secondary school teachers and students interested in plants may comprise a fifth group. The sixth group makes up homeowners who are gardeners or are interested in native plants for their home gardens and yards, and, persons interested in natural history.

This means that as we plan programs, activities, and a newsletter, we should include topics attractive to all of these groups. Moreover, diverse viewpoints should be expected and tolerated. We need to know how native plants affect society both now and in the future. We need to become informed on issues and concerns that affect conservation of our native flora and fauna. Members and those who attend MNPS meetings have views that need to be heard. The Board welcomes participation in discussions and in service on committees, boards, or in other special assignments. We encourage readers to avail themselves of the many opportunities presented by the varied activities of MNPS.

Wanted: MPP editor

Position: Editor of the MNPS Plant Press Newsletter

Term: One year with the option of renewal by the Board.

Start date: June 15, 1998.

Description of responsibilities:

The editor will be responsible for publication of the quarterly *Minnesota Plant Press*, the official organ of the Minnesota Native Plant Society. Duties include editing, assembly of articles, summaries of presentations and Society information. The editor will work with the Board on the newsletter and the Board is directly responsible for solicitation of articles and presentation summaries. The editor is also responsible for printing of the newsletter.

Qualifications:

We are looking for a MNPS member in good standing with demonstrated interest in native plants and extensive experience with plant science or Minnesota native plants, or both. The candidate should have a computer and access to word processors such as Word, WordPerfect or desktop publishing software. Internet access is desirable. Demonstration of good organizational skills and previous experience with publishing or writing is desirable.

Closing date for nominations: November 15, 1997

If interested in this position please present your credentials to the incoming MNPS president Charles Umbanhowar.

MNPS Display Board Use

All members are welcome to show our display board at events, museums, and schools, if an attendant is present or it is safely displayed. This 3 by 5 foot, 2-sided board holds information on the Society, native plants, and stewardship. Request it from Don Knutson.

The Minnesota Native Plant Society

Minnesota Plant Press

Thor Kommedahl, editor

Membership dues are \$10 per year for regular members and includes subscription to the newsletter; dues for students and seniors are \$8, for family \$12, for institutions \$20, and donors \$25. Checks can be made out to: Minnesota Native Plant Society, and sent to: Minnesota Native Plant Society, 220 Biological Sciences Center, 1445 Gortner Avenue, St. Paul, MN 55108.

Four issues are published each year.

MNPS Board of Directors

President: Chair Bezanson,

Vice-President: Charles Umbanhowar,

Treasurer: Pat Ryan,

Secretary: Christine Drassal,

Deb Anderson,

Dave Crawford,

Gerry Drewry,

Thor Kommedahl
Val O'Malley,

Gary Perrault,

Roy Robison,

The Minnesota Native Plant Society is a tax-exempt 501 c3 organization as determined by the US Internal Revenue Service.

Elementary school project on prairie planting

This spring the students at St. Anthony Park Elementary School, with help from teachers and parents, planned and planted a small prairie in front of the school.

The project began in the fall of 1996, with students stratifying prairie seeds, and culminated in several days of planting in late May of 1997. The project was funded by donations from parents and St. Paul Community Education, and by a grant from SNAP (School Nature Area Program).

Nate Tracy, a 5th grade student, described the project in this article, which was originally published in the school newspaper.

—Marcie O'Connor

PRAIRIE PROJECT

by Nate Tracy

This year we had another first, the Prairie Project. When asked why we planted a prairie, Mrs. O'Connor said, "I was making a butterfly garden and thought that a prairie was the best kind of a garden for butterflies, and we wanted to bring back the plants that grew here."

The Prairie Project was taken on by the "Green Team," a group of teachers, parents, and staff, who have been taking charge of the gardens around our school. The key people on the Prairie Project were parent Marcie O'Connor, ESL teacher Janeen Whitchurch, and Discovery Club leader Dan Clark. Students in the intermediate grades also work in a student Green Team.

A few classes—Ms. Mayer's, Ms. Polfliet's, Ms. Maguire's, plus two fourth grades—along with their classroom buddies from the primary grades planted the young prairie plants. Other classes cast seeds to start the grasses.

The fourth and fifth grade classes had grown the seedlings they planted. The process that we followed was first we scratched the seeds and put the seeds in a film canister, then put them in the refrigerator. This fooled the seeds

into acting as though they had weathered and had survived a winter. Second, we put the seeds in small pots and put them in the cart we have all seen in the library. We planted seeds of more than 40 different kinds of plants that used to live in the SAP neighborhood.

With this prairie Mrs. O'Connor hopes to attract insects like grasshoppers and butterflies. All of the 40 different plants can survive the winter. In about 3 years the prairie will look like a real prairie.

The planting was scheduled to start on May 16, but because of weather some classes couldn't plant until May 20! Mrs. O'Connor along with Mrs. Whitchurch and Mr. Clark and the students will make St. Anthony Park's first prairie a big success.

For more information on the project, please contact Marcie O'Connor,

Guide to Spring Wildflower Areas

This MNPS guide prepared by Marilyn and J.B. Andersen, Jim Schuster, and John Moriarty has been updated, redesigned, and reprinted as the 1996 edition, and covers the Twin City natural areas. Vera Ming Wong prepared new illustrations. Purchase copies at regular meetings of the MNPS for \$3 each. To receive a copy by mail order, send \$6.50 (check or money order) to MNPS, c/o Char Bezanson, The School Nature Area Project, 1520 St. Olaf Avenue, Northfield, MN 55057. Make checks payable to MNPS.

Plant sale was a success

The plant sale on June 3 generated income of \$489.50 compared with the sale in 1996 of \$283. The later date of this sale may have contributed to the increased interest and participation.—Pat Ryan, treasurer

Plant Lore

What is the cardinal flower?

The cardinal flower is *Lobelia cardinalis*, named after the Flemish botanist Matthias de l'Obel who anglicized his name to Matthew Lobel when he became a physician to King James I.

Is it native to Minnesota?

Yes, but it grows mainly in the marshy banks of the St. Croix and Mississippi rivers along the Wisconsin border.

What are its distinguishing characteristics?

Obviously, the intense crimson red flower spikes that are seen from July into September command attention. This makes it a popular garden plant, and it is attractive also to hummingbirds.

What else is there about the cardinal flower?

Well, it is a perennial, has short rhizomes, and the plants overwinter as rosettes. The leaves are lance-shaped and toothed.

What is the hummingbird relation?

The male stage of the flower precedes the female stage, and the flower appears to be adapted for pollination by hummingbirds and by daytime moths having long mouthparts. When the hummingbird inserts its tongue into the long red tube of the male stage to get nectar, its forehead picks up pollen which gets redeposited on the sticky female stage of the flower when it is visited.

Are there any similarities with lobelia known also as Indian tobacco?

Indian tobacco (white to pale blue flowers) is *Lobelia inflata* which was smoked by American Indians to treat asthma and bronchitis. However, *L. cardinalis* has a much weaker effect. Incidentally, *L. inflata*, also a Minnesota native plant, contains *lobeline*—one of 14 alkaloids in the plant—that is used in commercial "quit-smoking" lozenges and chewing gum.

Endangered plant species

The Center for Plant Conservation is a consortium of leading botanical gardens and arboreta in the United States. Its 28 member organizations store and maintain seeds, cuttings, and whole plants representing more than 500 of America's rarest plant species. This collection is known as the National Collection of Endangered Plants. (*New England Wild Flower* 1[1]: 6, 1997)

Prolific cottonwood

Tiny seeds of cottonwood (500,000 per pound) disperse widely because of wispy tufts or trichomes attached to seed reports Mike Merigliano, ecologist at the University of Montana. Seeds are dispersed over 3 to 5 weeks and remain viable for about 2 weeks, so that 400 to 6,000 seedlings per acre survive at the end of the growing season. (*Kelseya* 10[3]: 1, 6, 1997)

Aspen—native and hybrid

Aspen's ability to regenerate vigorously after disturbance and its adaptation to cool-temperate, boreal and montane ecosystems in North America make it the most economically important tree species in the Lake States. Information is available on the internet as <http://www.nces.umn.edu> under "research products". The two species in the breeding program are: *Populus tremuloides* (native) and *P. tremula* (Europe). (*NCNEWS*, February 1997 and *The Minn. Volunteer*, March-April, 1997)

Virginia wildflower of 1997

The Virginia Native Plant Society selected *Chionanthus virginicus* as its "Wildflower of the Year".

UM herbarium website

The University of Minnesota Herbarium has a web site at <http://biosci.cbs.umn.edu/herbarium>. It includes an annotated checklist for the vascular flora in the state, information on our online database, a checklist of the lichen flora, and more.—Anita F. Cholewa, Director, UM Herbarium, St. Paul.

Wetland restoration workshop

An *Ecologically Wetland Restoration* workshop will be held July 31-August 2, 1997, at the Conway School of Landscape Design, 46 Delabarre Avenue, Conway, Massachusetts 01341-0179. (413)-369-4044; E-mail workshop@csld.edu

Fire ecology

Controlled burning is being fostered to combat damage caused by years of fire suppression. Four times as many acres burned in 1994 as burned on average in the 1950s and 60s reports ecologist Wallace Covington. (*Earth* 6[4]: 36-41, 1997)

Help needed for treats!

The MNPS Board thanks all who volunteered and brought refreshments to meetings in 1996-1997—a contribution much appreciated!

Again, we are requesting members to sign up to bring refreshments (finger food and one or more beverages—coffee is supplied by the MNWRCenter). If you would like to be a "breaker of the ice" by becoming the first "treat bringer of the year" for the October meeting, please call Dave Crawford at

Thank you.—Dave Crawford

Audio tapes. If you can't attend a meeting but would like to hear the presentation, you can purchase an audio tape of the meeting, starting with the one on March 6, 1997 (subject to permission by the speaker). Send a check for \$5 payable to the *Minnesota Native Plant Society* and a mailing label with your full name and address. Send check and meeting date selection to Dave Crawford.

Remember, tapes do not include visual material.

Conservation issues. Discussion was focused on the conservation mission of the Society and the degree to which MNPS should participate in issues related to conservation of native plants. We are often asked to take positions on the relative merits (or not) of different conservation-related issues. We decided that (1) MNPS would draft a standard letter stating the Society's preference for project alternatives on conserved native plants to be sent out in response to some of these requests and (2) MNPS would provide a mechanism, e.g. phone tree for interested members and a bulletin board, to inform members of ongoing issues that relate to native plants with the idea that part of our mission is to inform and educate our members to enable them to form their own opinion.

Membership dues. With some reluctance, the Board approved an increase in the membership dues of \$2 for all categories except for the patron level. This is the first increase in dues in more than 10 years and is necessitated by increases in postal costs and the fact that we are now sending out the postcard that notifies members of the upcoming meeting. The increase in dues will start for 1998.

Newsletter and Symposium. Next year we are hoping to publish several different series of articles in the *Minnesota Plant Press*. Possible topics may include classification of Minnesota regions and communities, natural history of selected native plant species, plant-animal interactions and ecotourism. Please contact Thor Kommedahl if you would like to write an article (MNPS pays \$50 for an original feature article). We also discussed ideas for a spring symposium that could focus on the paleoecology and glacial history of Minnesota. Anyone interested in helping with the Symposium is asked to contact Dave Crawford or Charles Umbanhowar.—Charles Umbanhowar

Minnesota's Wetlands: Function and Diversity

Char A. Bezanson

Wetlands—No matter where you go in Minnesota, you are probably not far from a wetland, or land that once was wetland. When the last glaciers retreated from Minnesota 10,000 years ago, they left an uneven landscape full of massive chunks of ice, that eventually melted to form basins which then became lakes, marshes, and other wetlands. Wetlands fulfill a variety of functions. They control floods by slowing runoff and provide space for water to accumulate during the spring snow melt. They purify water by allowing rainwater and runoff to gradually soak into the ground, entering the ground water only after wetland plants have extracted nutrients and water has passed through many layers of wetland sediments. And they provide a diverse and biologically productive habitat for wildlife, producing as much plant and animal life as a similar-sized area of tropical rain forest.

An area is considered to be a wetland if it is covered by water for at least part of the year, has waterlogged soils, or supports water-loving plants. Although there are many different names for wetlands, Minnesota's wetlands can be grouped into five types: temporary wetlands, wet meadows, marshes, swamps, and bogs. Each Minnesota biome contains several types, although some wetland types are more likely to be found in forests, while others are more common in prairies.

Temporary wetlands—Vernal pool, ephemeral wetland, and flood plain forest wetlands contain water for only part of the year, and are among the state's most threatened wetlands. These wetlands were once common in the prairie biome, but many of them have now been drained for farmland, or filled for development. They support a wide variety of crustaceans, insects, reptiles, amphibians, and mammals, and are important food- and rest-stops for migrating birds.

Wet meadows—Sedge meadow, wet prairie, and fresh meadow are treeless open areas with wet or clay soils, often located near a high water table. They may or may not have standing water. Some have expanses of hummock-forming sedges, which make them look lumpy and slow water movement through the area. If the area is fed by mineral-rich ground water, an alkaline fen may develop; many rare plants occur in these areas. Wet meadows support a wide variety of flowering plants, many reptiles, amphibians, small mammals and birds, as well as wide-ranging mammals such as coyotes and moose. Large birds such as sandhill cranes feed on the abundant crustaceans, while owls and hawks prey on small mammals and birds. They may occur in association with lakes, rivers or with other wetland types such as marshes to form a large wetland complex.

Marshes—Slough, prairie pothole, pond, fresh marsh, and emergent marsh are what we usually think of when someone mentions a wetland. There is usually an area of open water that may be deep or shallow. Plants, often cattails or bulrushes, emerge from the water, and the arrow-shaped leaves of *Sagittaria* species may be common near the edges. Shallow marshes, which have more vegetation than deep marshes, may remove up to 90% of the nutrients and sediment from runoff water that passes through them. They store large amounts of floodwater, and support a wide variety of wildlife, including fish. Marshes are especially attractive to birds, including loons, ducks, geese, herons, and egrets. They are found in both prairie and forest areas of the state.

Swamps—Shrub carr, alder thicket, and tamarack/cedar/spruce/ash swamp are wetlands that include shrubs and trees. Swamps may spread out for thousands of acres, and are especially common in northern Minnesota, where they intermingle with lakes, streams, bogs, and marshes. Most form on top of decaying vegetation (peat) which builds up above the water table, providing the relatively dry substrate that trees need. Many wildlife species use swamps during part of the year; they provide winter shelter for deer, hares and grouse, and summer feed for moose. Many migrating bird species use swamps as rest stops, and woodpeckers search for insects in the abundant dead trees. Swamps are often pristine ecosystems, and support some of the state's rarest plant species, including ram's-head lady slipper and other orchids.

Bogs—Peatland, muskeg, and moor are wetlands that form on a thick mat of peat covered by a layer of sphagnum moss that builds up above the water table. The water in a bog is cold, oxygen-poor, and acidic; plants that do well in bogs are acid-loving plants such as cranberry, blueberry, bog rosemary, and Labrador tea. Bogs can cover large areas of land, and often include black spruce and tamarack stands. Orchids such as the pink lady slipper thrive there, and some plants compensate for the low availability of nutrients by consuming insects: pitcher plant and sundew are examples. Mammals that thrive in bogs include a variety of lemmings, shrews, and voles, as well as moose, lynx, black bear, and (in winter) deer. The great gray owl depends on the unique features of the bog, and birds such as sharp-tailed grouse, spruce grouse, red-tailed hawk, and a variety of smaller birds thrive there as well. Because they are relatively inaccessible and not suitable for agriculture, bogs are our most undisturbed wilderness. They occur most commonly in the coniferous forest biome of Minnesota.—Char A. Bezanson, School Nature Area Project, St. Olaf College, Northfield, MN 55057

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